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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,618	12/27/2001	Seung-Hwan Lee	P67474US0	9115
43569	7590	10/24/2006	EXAMINER	
MAYER, BROWN, ROWE & MAW LLP			BAYARD, EMMANUEL	
1909 K STREET, N.W.			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2611	

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,618

Applicant(s)

LEE ET AL.

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment filed on 8/11/06 in which claims 1-8 are pending. The applicant's arguments have been fully considered but they are moot based on the new ground of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Razzell U.S. Patent No 5,805,017 in view of Miller et al US Pub NO 7,079,604 B1.

As per claims 1, 5 Razzell teaches a synchronization system in digital communication, comprising: an "A/D" converter is the same as the claimed (converter for receiving signals from a transmitter, and over-sampling a single symbol interval into a plurality of sub-samples (see abstract and figs. 4-5 element 58 and col.1, lines 60-65 and col.3, lines 6-10); a signal processor for mapping is the same as the claimed (classifying) each symbol over-sampled by the converter into a sub-sample group according to a sample phase, and performing signal processing to adjust processing speeds (see col.3, lines 30-35 and col.6, lines 5-6); an integrator (see fig.4 element 18 and col.1, lines 65-66 and col.2, lines 17-20 and col.6, lines 36-41) for removing noise from the signals output by the signal processor and performing integration during a predetermined time.

However Razzell does not teach a timing selector for selecting an optimal symbol synchronization point from among values output by the integrator, generating a symbol timing signal and outputting it.

Miller et al teaches a timing selector for selecting an optimal symbol (see fig.4d element 240 or 280) synchronization point from among values output by the filter (which is known in art as having the same functionality as the claimed integrator) (see fig.4d elements 230, 270 and col.14, lines 45-52), generating a symbol timing signal and outputting it (see fig.4d element 250 or 285 and col.1, lines 60-67 and col.3, lines 41-45 and col.4, lines 5-10 and col.14, lines 59-col.15, lines 1-25).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Miller into Razzell as to obtain the best achievable signal quality as taught by Miller (see col.3, lines 41-45 and col.15, lines 1-40).

As per claim 2, Miller et teaches, further comprising a digital demodulator (see col.6, lines 52-57 and col.11, lines 1-9, 53-60) for receiving the symbol-timing signal from the signal processor generating a demodulation signal, and outputting it. Furthermore implementing the teaching of Miller into Razzell for receiving the timing selector would have been obvious to one skilled in the art as to find a multipath term with higher SNR as taught by Miller (see col.11, lines 51-54]).

As per claims 3 and 4, Razzel teaches wherein the signal processor comprises: a sample arranger for mapping (classifying) the over-sampled signal output by the converter into a sub-sample group according to a sample phase within the symbol ((see col.3, lines 30-35 and col.6, lines 5-6). However Razzell does not teach an absolute

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value calculator for converting the sub-sample values output by the sample arranger into absolute values.

Miller teaches an absolute value calculator for converting the sub-sample values output by the AD converter is the same as the claimed (sampler arranger) into absolute values (see fig.4 element 220 or 260).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Miller into Razzell as to obtain the best achievable signal quality as taught by Miller (see col.3, lines 41-45 and col.15, lines 1-40).

As per claim 6, Miller et teaches, further comprising a digital demodulator (see col.6, lines 52-57 and col.11, lines 1-9, 53-60) for receiving the symbol-timing signal from the signal processor generating a demodulation signal, and outputting it.

Furthermore implementing the teaching of Miller into Razzell for receiving the timing selector would have been obvious to one skilled in the art as to find a multipath term with higher SNR as taught by Miller (see col.11, lines 51-54]). As per claim 7, Stott et al teaches, wherein the signal processing in (b) converts sub-sample values that are output after they are classified into the sub-sample group (see fig.2 elements 22-24 and abstract and col.5, lines 25-40) into absolute values (see fig.9 element 82 and col.10, lines 33-34).

As per claims 7 and 8, Razzell teaches wherein the signal processor comprises: a sample arranger for mapping (classifying) the over-sampled signal output by the converter into a sub-sample group according to a sample phase within the symbol ((see col.3, lines 30-35 and col.6, lines 5-6). However Razzell does not teach an absolute

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value calculator for converting the sub-sample values output by the sample arranger into absolute values.

Miller teaches an absolute value calculator for converting the sub-sample values output by the AD converter is the same as the claimed (sampler arranger) into absolute values (see fig.4 element 220 or 260).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Miller into Razzell as to obtain the best achievable signal quality as taught by Miller (see col.3, lines 41-45 and col.15, lines 1-40).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. ***

Miller U.S Patent 6,925,108 B1 teaches an ultrawide bandwidth system.

Braardjanian et al U.S. Patent No 6,567,480 B1 teaches a method and apparatus for sampling timing adjustment.

Muramoto U.S. Pub no 20020090923 A1 teaches a synchronization timing.

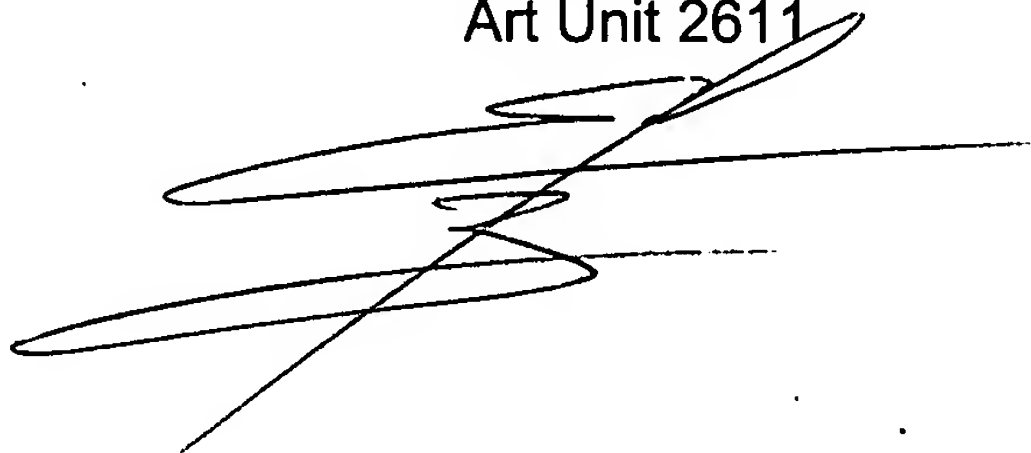
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571 272 2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emmanuel Bayard
Primary Examiner
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A handwritten signature in black ink, appearing to be 'Emmanuel Bayard', written over the printed name and title.

10/20/06